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A Systematic Review**

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## The effectiveness of nutrition education programmes on improving dietary intake in athletes: a systematic review

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### Abstract

Nutrition education programmes for athletes aim to enhance nutrition knowledge and more importantly support positive dietary change to enhance performance, health and well-being. This systematic review assessed changes in the dietary intakes of athletes in response to nutrition education programmes. A search was conducted which included studies providing quantitative dietary intake assessment of athletes of any calibre aged between 12 and 65 years in response to a nutrition education programme. Standardised differences (effect sizes) were calculated (when possible) for each dietary parameter. The search yielded 6285 papers with twenty-two studies (974 participants (71.9 % female)) eligible for inclusion. Studies described athletes competing at high school ( $n$  3) through to college level or higher ( $n$  19). Study designs were either single arm with an intervention-only group (twelve studies;  $n$  241) or double arm including an intervention and control group (ten studies;  $n$  689). No control groups received an alternative or 'sham' intervention. Face-to-face lectures (9/22) and individual nutrition counselling (6/22) were the most common education interventions. Non-weighed, 3-d diet records (10/22) were the most frequently utilised dietary assessment method. Although 14/22 studies ( $n$  5 single and  $n$  9 double) reported significant change in at least one nutrition parameter, dietary changes were inconsistent. Poor study quality and heterogeneity of methods prohibit firm conclusions regarding overall intervention success or superior types of educational modalities. Of note, carbohydrate intakes 'post-intervention' when assessed often failed to meet recommended guidelines (12/17 studies). Given the substantial investment made in nutrition education interventions with athletes, there is a need for well-designed and rigorous research to inform future best practice.

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